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Award issued to:
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Project Title:
Preserving and Digitizing Paper Well Records of
Petroleum Hydrocarbon Chromatographic Analyses of
Drill Cuttings and Core Chips

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Abstract
During USGS FY 2014, the Michigan Geological Survey (MGS), part of Western Michigan University (WMU), completed a project to preserve and digitize paper well records of petroleum hydrocarbon chromatographic analyses of drill cuttings and core chips. These analyses provide data from 1179 wells throughout Michigan from several formations, but predominantly from the Silurian Niagaran reefs, which have been prolific hydrocarbon producers.

Donated to the MGS by private industry, these chromatographic analyses identified the Carbon fractions (C5-C26) of hydrocarbons in rock samples from drill cuttings [generally sand-sized rock samples] and core chips [larger fingernail-sized rock pieces]. Graphic plots of the data produce unique hydrocarbon signatures that distinguish between commercially or non-commercially productive oil and gas zones. Samples analyzed were taken at 5' and 10' vertical intervals. Resulting data can be used to interpret the likelihood of commercial hydrocarbon production through the entire section sampled.

These analyses were conducted between 1970 and 1990 when mudlogs were relatively insensitive indicators and open-hole logs provided much less information. At that time, no other analytical tool reliably provided all the information yielded by these chromatographic analyses.

Although these analyses produced very useful data, they have not been conducted for decades, having been replaced largely by other downhole technologies. Many geologists today are unfamiliar with these analyses and their potential use in identifying prospective wells/zones for secondary and tertiary recovery. And, because these records were previously available only in paper form, they remained largely unknown.

By making these analyses accessible to industry members, the NGGDPP and the Michigan Geological Survey provide data that can readily be used to help identify prospective wells and/or zones to re-enter for further production. Using this data, industry members can potentially reduce exploration and production costs because they are working with known productive wells.

This project furthers the Survey's long-term goals of preserving and digitizing paper data, making that data publicly accessible, and using it in applied research and education.

Work proposed and completed
Through this project, the Survey inventoried the collection and scanned all records to PDF format at 300 dpi resolution and uploaded the inventory together with metadata to the NGGDPP at https://www.sciencebase.gov/catalog/item/556e1b5ee4b0d9246a9f9a96.

We had proposed to inventory and scan records from approximately 1150 wells. We actually completed this work for 1,179 wells.

Thank you
We are grateful for the opportunity to be part of this national geological data archive because we strongly believe we must preserve data records from our geological resources. The data we preserve today may well prove to be invaluable tomorrow. We thank the NGGDPP for its leadership and perseverance and for funding this work at the Michigan Geological Survey.